

US EPA ARCHIVE DOCUMENT

Appendix B

UIC Permit Application

Appendix B

Eagle Project

Class V Permit Application

Project ID: 04W018

Prepared for

Kennecott Eagle Minerals Company

ISO 14001:2004 Registered System

Prepared by

Foth Infrastructure & Environment, LLC

April 2007

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Eagle Project Class V Permit Application

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Appendix

Appendix A	Hydrogeologic Report for the Eagle Project Groundwater Discharge Permit Application
Appendix B	Mine Water Sources and Characteristics
Appendix C	Wastewater Treatment System and Estimated Effluent Quality to be Discharged to the Treated Water Infiltration System
Appendix D	Treated Water Infiltration System – Discharge Management Plan
Appendix E	Groundwater Modeling of the Treated Water Infiltration System
Appendix F	Proposed Monitoring Plan

Figures

Figure 1	Project Location
Figure 2	Site Location Map

1. Introduction

This *Class V Permit Application* has been prepared in accordance with applicable sections of United States Environmental Protection Agency's (USEPA) instructions. The information contained in this document has been previously provided to the Michigan Department of Environmental Quality (MDEQ) in a February 2006 document entitled *Eagle Project – Groundwater Discharge Permit Application*. This *Class V Permit Application* is being submitted in response to letters from USEPA (dated January 31, 2007 and March 22, 2007) to Kennecott Eagle Minerals Company (KEMC) stipulating that the infiltration of treated water from the Eagle Project through the treated water infiltration system (TWIS) will require a Class V Permit.

In preparing this application, the *Class V Permit Application Instructions* were followed. Several sections documented in the instructions are not applicable to this application since the project has not yet been constructed and the requested material is not applicable to the Eagle Project. The following summarizes specific sections from the instructions that are not presented in this document:

- ◆ C – Corrective Action Plan and Well Data (not applicable for Class V).
- ◆ I – Formation Testing Procedures (not applicable for Class V).
- ◆ J – Stimulation Program (not applicable).
- ◆ L – Construction Procedures (not applicable for Class V).
- ◆ N – Changes in Injected Fluid (not applicable for Class V).
- ◆ O – Plans for Well Failures (not applicable for Class V).
- ◆ S – Aquifer Exemptions (not requested).

2. Map of Well/Area and Area of Review

Figure 1 shows the location of the proposed Eagle Project. Figure 2 presents a USGS topographic map which depicts a 1-mile radius around the proposed TWIS. In addition, proposed water supply wells, discharge structures and piping within ¼ mile of the proposed TWIS are shown on Figure 2. There are no public or private wells, or hazardous waste treatment storage and/or disposal areas within ¼ mile of the proposed TWIS.

Property ownership within ¼ mile of the TWIS is shown on Figure 1. The following is a list of adjacent property owners:

Michigan Department of Natural Resources
Land and Mineral Services Division
P.O. Box 30448
Lansing, MI 30448

Plum Creek
P.O. Box 1008
7100 County 427 M.5 Road
Escanaba, MI 49829-6008

Longyear Realty Corporation
210 Front Street
Marquette, MI 49829-6008

3. Maps and Cross Section of USDWs and Geologic Structure of Area

A hydrogeologic report for the Eagle Project's groundwater discharge system is provided in Appendix A. This report provides information on the following:

- ◆ Methods of investigation,
- ◆ Well head protection areas and surrounding domestic wells,
- ◆ Information of site geology,
- ◆ Information on regional aquifers and underground sources of drinking water (USDW),
- ◆ The patterns of regional groundwater flow,
- ◆ Hydraulic characteristics of the geologic formations,
- ◆ Geologic cross sections,
- ◆ Potentiometric surface maps,
- ◆ Borings logs, etc.

4. Operating Data

A description of the sources of water from the mining operations is provided in Appendix B. This appendix contains water balance information and water chemistry data on the water that will be treated at the waste water treatment plant (WWTP). Appendix C contains information on the water treatment system and expected effluent quality. Appendix D contains information on the design and operation of the TWIS. Appendix E contains information on the modeling of groundwater flow from the TWIS.

5. Infiltration Procedures

Information regarding the infiltration procedures is summarized in a *Discharge Management Plan for the Treated Water Infiltration System* contained in Appendix D.

6. Construction Details

Information regarding construction details for the infiltration system are summarized in a *Discharge Management Plan for the Treated Water Infiltration System* that is contained Appendix D. The general location of the TWIS is shown on Figure 2. The TWIS has not been constructed, therefore information regarding its construction and operational history is not available.

7. Monitoring Program

The monitoring program for the TWIS is provided in Appendix F.

8. Plugging and Abandonment Plan

The TWIS will be decommissioned at the end of the underground mine operations (approximately 12-17 years after site construction begins). Reclamation of the TWIS will include removal of all piping and mechanical systems and regrading and revegetating the infiltration cell areas. Plastic piping will be disposed at an approved landfill.

9. Necessary Resources

KEMC will provide financial assurance in the amount of approximately \$17,000,000 to the State of Michigan for site reclamation (including the TWIS) and monitoring pursuant to Part 632 of the State of Michigan Natural Resources and Environmental Protection Act and administrative rules promulgated under R 425.101 et.seq. KEMC will select a financial assurance instrument that meets the requirements of R 425.302.

10. Existing EPA Permits

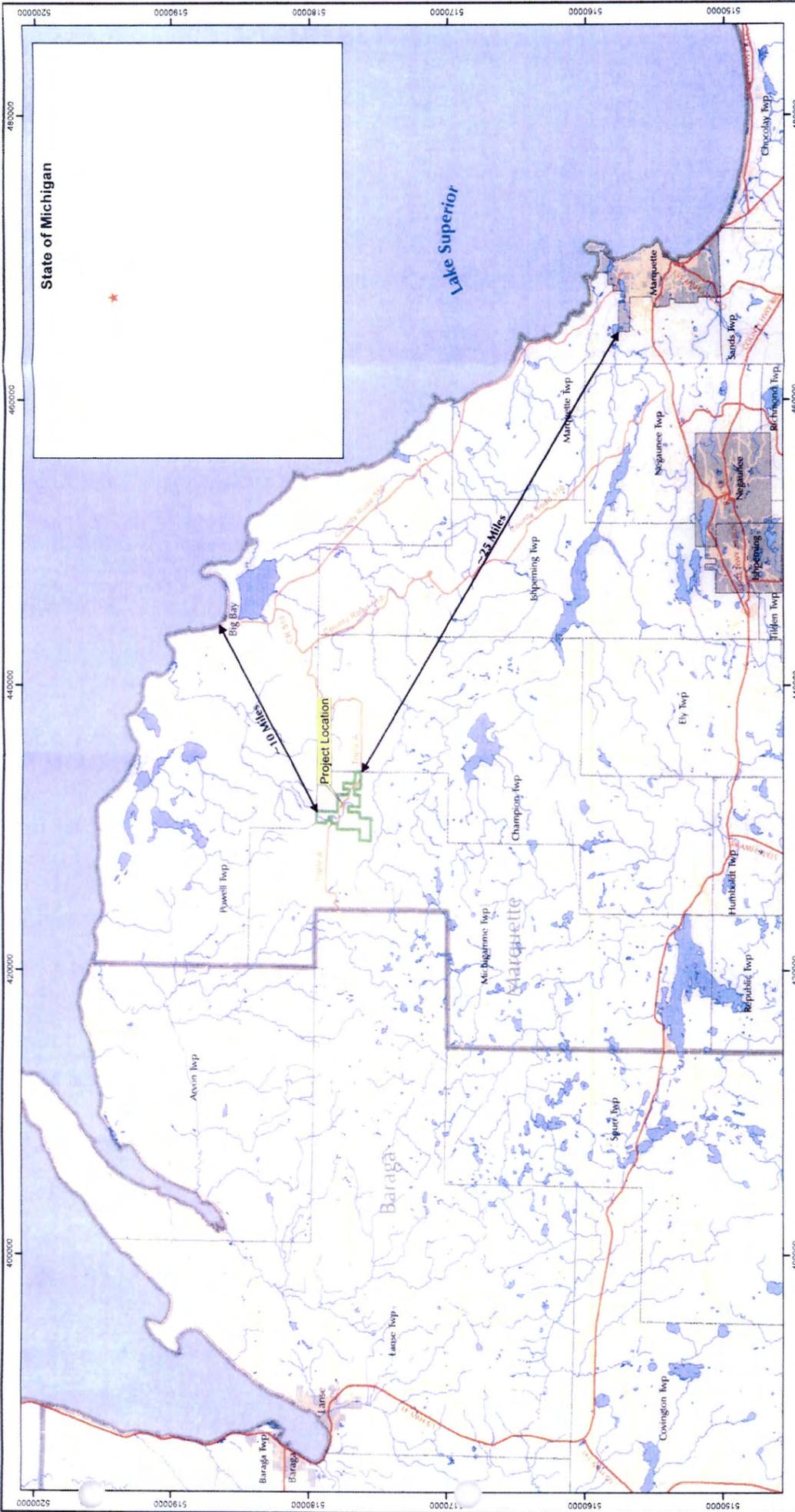
There are no other USEPA permits required for the project.

11. Description of Business

The Eagle Project is a proposed facility for mineral extraction. There will be no milling or chemical processing of ore at the Eagle Project site.

FIGURES

Figures



NOTES

1. Surface property boundary as of November 18, 2004 supplied by Kennecott via Golder & Associates Inc. August, 2005
2. Horizontal datum based on NAD 83/94
3. All base information downloaded from Michigan Center of Geographic Information (<http://www.michigan.gov/cgi>)
4. Site Location - Project Site within Sections 11 & 12, T50N, R23W, Town of Michiganville, Marquette County, Michigan

LEGEND

- Countries
- Minor Civil Divisions
- Kennecott Surface Ownership
- Lakes and rivers
- Highways
 - Major Roads
 - Minor Roads

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION

CHECKED BY: JDS1 DATE: FEB 06

APPROVED BY: SVD1 DATE: FEB 06

APPROVED BY: _____ DATE: _____

Kennecott Eagle Minerals

FIGURE 1

PROJECT LOCATION

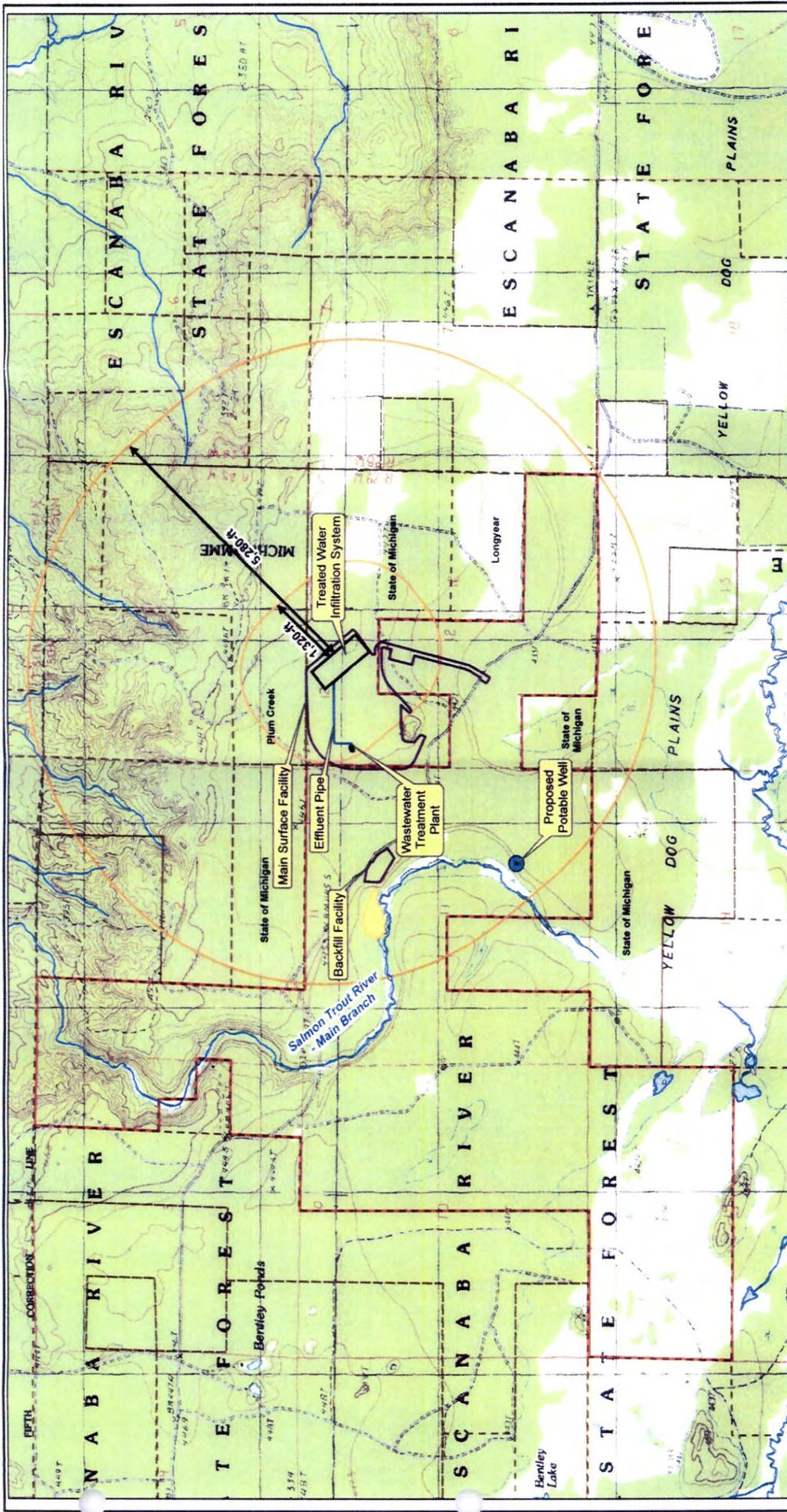
Scale: 1" = 10 Miles

Prepared by: DAT

Date: FEBRUARY, 2005

Scope: 04WD18

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NOTES

1. Surface Property Boundary as of November 18, 2005 supplied by Kennecott via Golder Associates Inc., August, 2005
2. USGS georeferenced Digital Raster Graphics (DRG) quadrangles supplied by Kennecott via Golder Associates Inc., August, 2005.
3. Horizontal datum based on NAD 83 UTM Zone 16.
4. Site Location - Project Sites within Sections 11 & 12, T50N R22W, Town of Michigan, Marquette County, Michigan.

LEGEND

- Eagle Ore Body
- Location of Surface Facilities
- Kennecott Surface Ownership
- Streams
- Longyear Property Owner

FIGURE 2
SITE LOCATION MAP

Kenecott
Eagle Minerals

REVISED	DATE	BY	DESCRIPTION

CHECKED BY	DATE
JOS1	DATE APR '07
	DATE APR '07

APPROVED BY	DATE
	DATE
	DATE

Scale: _____
 Prepared by: DAT
 Date: APRIL 2007
 Scope: 04W016

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